

**Cod. 39DMA**  
 The DMA multi device is designed and built to facilitate charging, decreasing/increasing pressure or pressurising self-contained cylinders or hoses systems. It consists of two units: Main (39DMCILA) and secondary (39DMCPVA).



**Cod. 39DMCILA**  
 Multi device for charging, discharging and adjust gas pressure.



**Cod. 39DMCPVA**  
 3 meters of high pressure hose, 1 female Cejin quick fit, 1 ON/OFF valve, 1 shut off valve and 1/2-20 UNF male coupling to connect to the nitrogen bottle.



**Cod. QDFV01** for 1/8\"/>



**Cod. 58CE03** for M6 thread  
**Cod. 58CE05** for 1/8\"/>
 Hex T-key to remove charging hole plug and valve retaining screw.



**Cod. 39DDS01A**  
 Discharging device.  
 BLUE side for M6 hole  
 GOLD side for 1/8\"/>



**Cod. 39RFG**  
 Special Springs gas detector for easy gas leakage.



**Cod. 58KNIPEX**  
 Multipurpose pliers with spouts.



**Cod. 58CD01**  
 Torque wrench for one way valve 59VU02.



**Cod. 58EM06**  
**Cod. 58EM08**  
 T-handle to remove piston-rod + bushing.



**Cod. 58EAR**  
 Retaining C-ring removal tool.



**Cod. 39PM02A**  
 Table manual press for easy and safe positioning of components.



**Cod. 49TB024** (S500)  
**Cod. 49TB030** (S750)  
**Cod. 49TB045** (S1500)  
**Cod. 49TB060** (S3000)

Reassembly guiding tube for the bushing + reassembly positioning tube for the retaining C-ring.



**Cod. 49TN032** (S500)  
**Cod. 49TN036** (S750)  
**Cod. 49TN055** (S1500)  
**Cod. 49TN070** (S3000)

Anti scratch nylon tube to set the bushing into the cylinder body to release the retaining C-ring.



**Cod. 58UT002A** (1500)  
**Cod. 58UT003A** (S3000)

Screw extracting device for rod and bushing.



**NITROGEN CYLINDERS MAINTENANCE KIT**

- |        |                  |
|--------|------------------|
| S500A  | Cod. 39BMS00500A |
| S750A  | Cod. 39BMS00750A |
| S1500A | Cod. 39BMS01500A |
| S3000A | Cod. 39BMS03000A |

**⚠** The complete assembled kit along with this step-by-step service manual is result of Special Springs research for the most useful maintenance operation for Special Springs nitrogen gas cylinders. Few minutes and the Special Springs nitrogen gas cylinders are regenerated as new one.

**⚠** Special Springs along with its own global network are pleased to help you anytime for the best result of your work.

**⚠** Before starting any maintenance work, carefully check if the rod or the body of the cylinder are damage or wear. If yes, it is recommended to replace the cylinder immediately and do not proceed with the maintenance operation.

**⚠** Before starting any maintenance work carefully check the maintenance kit to correspond to the model of cylinder for which is required.

**⚠** Before starting any maintenance work carefully check this step-by-step manual to correspond to the model of cylinder for which is required.

**⚠** Instructions and pictures of this step-by-step manual could slightly differ from practise.



All Special Springs step-by-step manuals are available for download from our web site: [www.specialsprings.com](http://www.specialsprings.com)



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**NITROGEN GAS CYLINDERS MAINTENANCE INSTRUCTIONS**

**S 500 A  
 S 750 A  
 S 1500 A  
 S 3000 A**

### I. DISCHARGING + VALVE REMOVAL for self-contained cylinders.



1. Remove the protective screw cap into the charging hole 1/8"G by using the hex key (58CE05). Preserve the protective screw cap for further reassembly.



2. Thread DDS discharging device on the charging port then exhaust completely the pressure. Point away from the operator for maximum safety. 39DDS01A BLUE side for M6 hole GOLD side for 1/8"G hole



3. Be sure the pressure is completely exhausted by pressing down the piston rod into the cylinder body. Then unthread the discharging device from the discharging hole.

### Non self-contained cylinders.



A. To exhaust pressure of hoses cylinders open the discharging valve on the control panel.



B. Be sure the pressure is completely exhausted by pressing down the piston rod into the cylinders body.

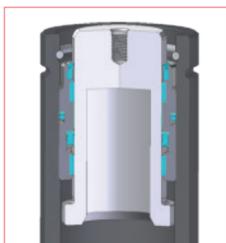


4. Hang and release the one way valve from the hole by using the one way valve removing-setting dynamometric wrench (58CD01). It would be normal some oil leak from the hole when upside down the cylinder.

### III. RETAINING C-RING REMOVAL.



5. Position the anti scratch nylon removal tube on the cartridge (49TN...) then by the manual press (39PM02A) press all down into the body. The retaining ring is now free for an easy removal.



5.1. Cut off of cylinder to see the right position of the cartridge and C-ring after operation.



6. Position and clamp the cylinder into a self - centring chuck or a vise.



7. By using the C-ring removal tool (58EAR) remove the retaining C-ring by using the appropriate removal tool and pincer (58KNIPEX). Preserve the retaining C-ring for further reassembly.

### IV. PISTON ROD AND BUSHING REMOVAL.



8. By using the T-handle M8 (58EM08) extract the piston-rod and the cartridge from the body (only model S500; S750). By using the proper Screw extracting device (58EV...) extract the piston-rod and the cartridge for other models.



9. Slide off the cartridge from the rod. Discard the cartridge.

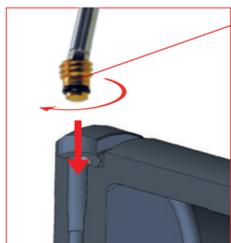


10. Carefully check and clean the cylinder body. If the body show any wear or damage do not use it again and replace it with a new one.



11. Carefully check and clean the piston-rod. If the piston rod shows any wear or damage do not use it again and replace it with a new one.

### VI. ONE WAY VALVE REASSEMBLY.



12. Position and thread the one way valve into the hole by using the appropriate special dynamometric tool already calibrated. **Torque force required maximum 0,5 Nm.** Do not exceed the maximum torque force indicated to not damage the one way valve. 58CD01 dynamometric wrench.

One way valve (59VU02)

### VII. REASSEMBLY OF PISTON-ROD AND CARTRIDGE.



13. Lubricate all the installed components into the assembled bushing with the Special Springs grease.



14. With the manual press (39PM02) insert the assembled bushing into the rod. Be care to position it on the right side, follow the laser print arrows on the bushing.



15. Slide down the assembled bushing to the piston shoulder.



16. Grease the O-ring on the assembled bushing with the specific Special Springs grease.



17. Lubricate inside the cylinder body with the specific Special Springs oil supplied with the repair kit. Be care to the quantity as indicated for each cylinder model.

Model	OIL
S 500	5 ml
S 750	5 ml
S 1500	10 ml
S 3000	15 ml

NOTE: Each oil dispenser contains a volume of 5 ml.

### VIII. REASSEMBLY OF THE RETAINING C-RING.



18. Set the positioning tube (49TB...) on the upper part of the cylinder body, then manually insert the piston-rod and the assembled bushing into the positioning tube.



19. Position the retaining C-ring into the conical centring guide tube.



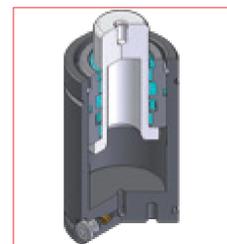
20. Insert the positioning tube ( ) over the rod in contact with the upper side of the assembled bushing, then by the manual press, press down into the cylinder body, the piston rod and the assembled bushing.



21. By using the manual press (39PM02A) act on the positioning tube to push down the retaining C-ring into its groove. When the C-ring enter into the groove you will hear a "click".



22. After threading the T-handle M8 (58EM08) into the rod head threaded hole, pull completely the unit piston-rod and bushing.



22.1 Cut off with all components correctly assembled.

### IX. CHARGING AND FORCE TEST



23. Open the nitrogen bottle main tap. 39R... pressure reducer.



24. Adjust the required charging pressure through the regulation valve. Usually the gauge on the right display the set charging pressure. 39R... pressure reducer.



25. Select and assemble the desired charging adapter on the charging unit device (39DMA), thread it on the charging hole and proceed to fill the gas on the desired pressure (Max. 150 if not different specified). Do not exceed the maximum indicated charging pressure.



26. Ratched and stabilized the desired pressure, for an easy and safety work carefully follow the instructions supplied with the charging unit.



27. When directly charging through the adapter (39DFV01) and desired pressure is reached shut off the hose and bottle valves and disconnect the the quick fit coupling. For an easy and safety work carefully follow the instructions supplied with the charging unit.



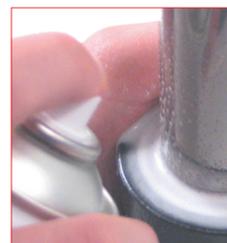
28. Unthread and release the adapter from the charging hole.



29. More precise force control can be carried out by using the digital force testing rigs FT... Digital force tester IPCDIG Digital force tester



30. It is always recommended to check leaks on the charging port after the maintenance work and before re-using the cylinders by using the special gas detector.



30.1. It is always recommended to check leaks on the charging port after the maintenance work and before re-using the cylinders by using the special gas detector (39RFG).



31. Thread the protective screw cap into the charging hole 1/8"G by using the hex key .



A. For charging hoses system use the proper device (39DMPCVA) to connect the control panel.



B. Adjust the required charging pressure through the regulation valve. Usually the gauge on the right display the set charging pressure.



C. Connect the female quick fit on the male quick fit on the panel (39DMCPVA) and open the gas tap. For an easy and safety work carefully follow the instructions supplied with the charging unit (39DMA).



D. Use the Special Springs gas detector (39RFG) to check hose cylinders connections.



E. Use the Special Springs gas detector (39RFG) to check hose cylinders connections.

### X. PRESSURE ADJUSTING.



32. When required the adjusting pressure remove the protective screw cap into the charging hole 1/8" by using the hex key (58CE05), then use the main unit (39DMCILA) of the Special Springs charging device. More details included with (39DMCILA) instruction manual.

### Non self-contained cylinders.



A. When required the adjusting of pressure can be easily adjusting acting/opening the discharging valve on the control panel.